# Smarter Balanced Assessment Consortium
# Claims, Targets, and Standard Alignment for Math

The Smarter Balanced Assessment Consortium (SBAC) has created a hierarchy comprised of claims and targets that together can be used to make statements about student achievement. The claim is a broad statement that will outline the outcomes achieved with mastery of the standards within it. Within each claim are a variety of assessment targets that further clarify the knowledge and specific skills that cross over a cluster of standards.

The following tables layout the claims and targets for claims 1-4. Each target may feature a standard or a variety of standards that make up the skill(s) of the target. Each target also features a Depth of Knowledge level(s) and item type(s) in which the target may be assessed.

Item Types:

- MC – Multiple Choice, Single Correct Response
- MS – Multiple Choice, Multiple Correct Response
- EQ – Equation/Numeric
- MA – Matching Tables
- TI – Fill-in tables
- DD – Drag and Drop
- HS – Hot Spot
- G – Graphing
- GI – Graphing Interaction
- ST – Short Text

Depth of Knowledge:

- 1 - Recall
- 2 - Skill/Concept
- 3 - Strategic Thinking
- 4 - Extended Thinking

Work:
Not all content in a given grade is emphasized equally in the standards. Some clusters require greater emphasis than others based on the depth of ideas, the time they take to master, and/or their importance to future mathematics or the demands of college and career readiness. The following tables identify the additional and supporting work for the grade by shading. If no shading is included, all standards listed are part of the major work for that level.

| Claim | Target | DOK | Standards | Item Types |
|---|---|---|---|---|
| **1**: **Concepts and Procedures:** Students can explain and apply mathematical concepts and carry out mathematical procedures with precision and fluency. | **A**: Represent and solve problems involving multiplication and division. | 1 | **3.OA.1** Interpret products of whole numbers, e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each. For example, describe a context in which a total number of objects can be expressed as 5 × 7. | EQ |
| | | | **3.OA.2** Interpret whole-number quotients of whole numbers, e.g., interpret 56 ÷ 8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. For example, describe a context in which a number of shares or a number of groups can be expressed as 56 ÷ 8. | |
| | | | **3.OA.3** Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem. | |
| | | | **3.OA.4** Determine the unknown whole number in a multiplication or division equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations 8 × ? = 48, 5 = ___ ÷ 3, 6 × 6 = ?. | |

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| Claim | Target | DOK | Standards | Item Types |
|---|---|---|---|---|
| **1**: **Concepts and Procedures:** Students can explain and apply mathematical concepts and carry out mathematical procedures with precision and fluency. | **B**: Understand properties of multiplication and the relationship between multiplication and division. | 1 | **3.OA.5**: Apply properties of operations as strategies to multiply and divide. Examples: If 6 × 4 = 24 is known, then 4 × 6 = 24 is also known. (Commutative property of multiplication.) 3 × 5 × 2 can be found by 3 × 5 = 15, then 15 × 2 = 30, or by 5 × 2 = 10, then 3 × 10 = 30. (Associative property of multiplication.) Knowing that 8 × 5 = 40 and 8 × 2 = 16, one can find 8 × 7 as 8 × (5 + 2) = (8 × 5) + (8 × 2) = 40 + 16 = 56. (Distributive property.) | MC, MA, EQ |
| | | | **3.OA.6**: Understand division as an unknown-factor problem. For example, find 32 ÷ 8 by finding the number that makes 32 when multiplied by 8. | |
| | **C:** Multiply and divide within 100. | 1 | **3.OA.7:** Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers. | EQ, MA |
| | **D:** Solve problems involving the four operations, and identify and explain patterns in arithmetic. | 2 | **3.OA.8:** Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. | EQ, MC, TI |
| | | | **3.OA.9:** Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends. | |

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| Claim | Target | DOK | Standards | Item Types |
|---|---|---|---|---|
| **1**: **Concepts and Procedures:** Students can explain and apply mathematical concepts and carry out mathematical procedures with precision and fluency. | **E:** Use place value understanding and properties of operations to perform multi-digit arithmetic. | 1 | **3.NBT.1:** Use place value understanding to round whole numbers to the nearest 10 or 100. | EQ |
| | | | **3.NBT.2:** Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction. | |
| | | | **3.NBT.3:** Multiply one-digit whole numbers by multiples of 10 in the range 10–90 (e.g., 9 × 80, 5 × 60) using strategies based on place value and properties of operations. | |
| | **F:** Develop understanding of fractions as numbers. | 1, 2 | **3.NF.1:** Understand a fraction 1/b as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size 1/b. | MC, MS, EQ, HS, DD, MA, G |
| | | | **3.NF.2:** Understand a fraction as a number on the number line; represent fractions on a number line diagram. | |
| | | | **3.NF.3:** Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. | |
| | **G:** Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects. | 1, 2 | **3.MD.1:** Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram. | MC, EQ |
| | | | **3.MD.2:** Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem. | |

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| Claim | Target | DOK | Standards | Item Types |
|---|---|---|---|---|
| **1**: **Concepts and Procedures:** Students can explain and apply mathematical concepts and carry out mathematical procedures with precision and fluency. | **H:** Represent and interpret data. | 2 | **3.MD.3:** Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs. For example, draw a bar graph in which each square in the bar graph might represent 5 pets. | HS, EQ |
| | | | **3.MD.4:** Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters. | |
| | **I:** Geometric measurement: understand concepts of area and relate area to multiplication and to addition. | 2 | **3.MD.5** Recognize area as an attribute of plane figures and understand concepts of area measurement. | EQ, MC |
| | | | **3.MD.6** Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units). | |
| | | | **3.MD.7** Relate area to the operations of multiplication and addition. | |
| | | | **3.OA.5** Apply properties of operations as strategies to multiply and divide. Examples: If 6 × 4 = 24 is known, then 4 × 6 = 24 is also known. (Commutative property of multiplication.) 3 × 5 × 2 can be found by 3 × 5 = 15, then 15 × 2 = 30, or by 5 × 2 = 10, then 3 × 10 = 30. (Associative property of multiplication.) Knowing that 8 × 5 = 40 and 8 × 2 = 16, one can find 8 × 7 as 8 × (5 + 2) = (8 × 5) + (8 × 2) = 40 + 16 = 56. (Distributive property.) | |
| | | | **3.G.2** Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. For example, partition a shape into 4 parts with equal area, and describe the area of each part as 1/4 of the area of the shape. | |

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| Claim | Target | DOK | Standards | Item Types |
|---|---|---|---|---|
| **1**: **Concepts and Procedures:** Students can explain and apply mathematical concepts and carry out mathematical procedures with precision and fluency. | **J:** Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures. | 1 | **3.MD.8:** Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters. | EQ |
| | **K:** Reason with shapes and their attributes. | 1, 2 | **3.G.1:** Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories. | MA, HS, DD, G, EQ |
| | | | **3.G.2:** Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. For example, partition a shape into 4 parts with equal area, and describe the area of each part as 1/4 of the area of the shape. | |

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| Claim | Target/DOK | Standards | Item Types |
|---|---|---|---|
| **2**: **Problem Solving:** Students can solve a range of well-posed problems in pure and applied mathematics, making productive use of knowledge and problem-solving strategies. | **A:** Apply mathematics to solve well-posed problems in pure mathematics and rising in everyday life, society, and the workplace. (2, 3)<br><br>**B:** Select and use appropriate tools strategically. (1, 2)<br><br>**C:** Interpret results in the context of a situation. (2)<br><br>**D:** Identify important quantities in a practical situation and map their relationships (e.g., using diagrams, two-way tables, graphs, flowcharts, or formulas). (1, 2, 3) | **3.OA.1** Interpret products of whole numbers, e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each. For example, describe a context in which a total number of objects can be expressed as 5 × 7. | MC, MS, EQ, GI, MA, TI |
| | | **3.OA.2** Interpret whole-number quotients of whole numbers, e.g., interpret 56 ÷ 8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. For example, describe a context in which a number of shares or a number of groups can be expressed as 56 ÷ 8. | |
| | | **3.OA.3** Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem. | |
| | | **3.OA.4** Determine the unknown whole number in a multiplication or division equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations 8 × ? = 48, 5 = ___ ÷ 3, 6 × 6 = ?. | |
| | | **3.OA.8:** Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. | |
| | | **3.OA.9:** Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends. | |

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| Claim | Target/DOK | Standards | Item Types |
|---|---|---|---|
| **2**: **Problem Solving:** Students can solve a range of well-posed problems in pure and applied mathematics, making productive use of knowledge and problem-solving strategies. | **A:** Apply mathematics to solve well-posed problems in pure mathematics and rising in everyday life, society, and the workplace. (2, 3)<br><br>**B:** Select and use appropriate tools strategically. (1, 2)<br><br>**C:** Interpret results in the context of a situation. (2)<br><br>**D:** Identify important quantities in a practical situation and map their relationships (e.g., using diagrams, two-way tables, graphs, flowcharts, or formulas). (1, 2, 3) | **3.NBT.1:** Use place value understanding to round whole numbers to the nearest 10 or 100.<br><br>**3.NBT.2:** Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.<br><br>**3.NBT.3:** Multiply one-digit whole numbers by multiples of 10 in the range 10–90 (e.g., 9 × 80, 5 × 60) using strategies based on place value and properties of operations.<br><br>**3.MD.1:** Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.<br><br>**3.MD.2:** Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem.<br><br>**3.MD.3:** Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs. For example, draw a bar graph in which each square in the bar graph might represent 5 pets.<br><br>**3.MD.4:** Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters. | MC, MS, EQ, GI, MA, TI |

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|---|---|---|---|
| **2**: **Problem Solving:** Students can solve a range of well-posed problems in pure and applied mathematics, making productive use of knowledge and problem-solving strategies. | **A:** Apply mathematics to solve well-posed problems in pure mathematics and rising in everyday life, society, and the workplace. (2, 3)<br><br>**B:** Select and use appropriate tools strategically. (1, 2)<br><br>**C:** Interpret results in the context of a situation. (2)<br><br>**D:** Identify important quantities in a practical situation and map their relationships (e.g., using diagrams, two-way tables, graphs, flowcharts, or formulas). (1, 2, 3) | **3.MD.5** Recognize area as an attribute of plane figures and understand concepts of area measurement.<br><br>**3.MD.6** Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units).<br><br>**3.MD.7** Relate area to the operations of multiplication and addition.<br><br>**3.MD.8:** Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters. | MC, MS, EQ, GI, MA, TI |

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|---|---|---|---|
| **3**: **Communicating Reasoning:** Students clearly and precisely construct viable arguments to support their own reasoning and to critique the reasoning of other. | **A:** Test propositions or conjectures with specific examples. (2)<br><br>**B.** Construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures. (3, 4)<br><br>**C:** State logical assumptions being used. (2, 3)<br><br>**D:** Use the technique of breaking an argument into cases. (2, 3)<br><br>**E:** Distinguish correct logic or reasoning from that which is flawed and—if there is a flaw in the argument—explain what it is. (2, 3, 4)<br><br>**F:** Base arguments on concrete references such as objects, drawings, diagrams, and actions. (2, 3) | **3.OA.5**: Apply properties of operations as strategies to multiply and divide. Examples: If 6 × 4 = 24 is known, then 4 × 6 = 24 is also known. (Commutative property of multiplication.) 3 × 5 × 2 can be found by 3 × 5 = 15, then 15 × 2 = 30, or by 5 × 2 = 10, then 3 × 10 = 30. (Associative property of multiplication.) Knowing that 8 × 5 = 40 and 8 × 2 = 16, one can find 8 × 7 as 8 × (5 + 2) = (8 × 5) + (8 × 2) = 40 + 16 = 56. (Distributive property.) | MC, MS, EQ, GI, MA, TI |
| | | **3.OA.6**: Understand division as an unknown-factor problem. For example, find 32 ÷ 8 by finding the number that makes 32 when multiplied by 8. | |
| | | **3.NF.1:** Understand a fraction 1/b as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size 1/b. | |
| | | **3.NF.2:** Understand a fraction as a number on the number line; represent fractions on a number line diagram. | |
| | | **3.NF.3:** Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. | |
| | | **3.MD.1:** Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram. | |
| | | **3.MD.2:** Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem. | |
| | | **3.MD.7** Relate area to the operations of multiplication and addition. | |

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|---|---|---|---|
| **4: Modeling and Data Analysis:** Students can analyze complex ,real-world scenarios and can construct and use mathematical models to interpret and solve problems. | **A:** Apply mathematics to solve problems arising in everyday life, society, and the workplace. (2, 3)<br><br>**B:** Construct, autonomously, chains of reasoning to justify mathematical models used, interpretations made, and solutions proposed for a complex problem. (2, 3, 4)<br><br>**C:** State logical assumptions being used. (1, 2)<br><br>**D:** Interpret results in the context of a situation. (2, 3)<br><br>**E:** Analyze the adequacy of and make improvements to an existing model or develop a mathematical model of a real phenomenon. (3, 4)<br><br>**F:** Identify important quantities I a practical situation and map their relationships (e.g., using diagrams, two-way tables, graphs, flowcharts, or formulas). (1, 2, 3)<br><br>**G*:** Identify, analyze, and synthesize relevant external resources to pose or solve problems. (3, 4) | **3.OA.1** Interpret products of whole numbers, e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each. For example, describe a context in which a total number of objects can be expressed as 5 × 7.<br><br>**3.OA.2** Interpret whole-number quotients of whole numbers, e.g., interpret 56 ÷ 8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. For example, describe a context in which a number of shares or a number of groups can be expressed as 56 ÷ 8.<br><br>**3.OA.3** Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.<br><br>**3.OA.4** Determine the unknown whole number in a multiplication or division equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations 8 × ? = 48, 5 = ___ ÷ 3, 6 × 6 = ?.<br><br>**3.OA.8:** Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.<br><br>**3.OA.9:** Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends. | MC, MS, EQ, GI, MA, TI |

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| Claim | Target/DOK | Standards | Item Types |
|---|---|---|---|
| **4: Modeling and Data Analysis:** Students can analyze complex ,real-world scenarios and can construct and use mathematical models to interpret and solve problems. | **A:** Apply mathematics to solve problems arising in everyday life, society, and the workplace. (2, 3)<br><br>**B:** Construct, autonomously, chains of reasoning to justify mathematical models used, interpretations made, and solutions proposed for a complex problem. (2, 3, 4)<br><br>**C:** State logical assumptions being used. (1, 2)<br><br>**D:** Interpret results in the context of a situation. (2, 3)<br><br>**E:** Analyze the adequacy of and make improvements to an existing model or develop a mathematical model of a real phenomenon. (3, 4)<br><br>**F:** Identify important quantities I a practical situation and map their relationships (e.g., using diagrams, two-way tables, graphs, flowcharts, or formulas). (1, 2, 3)<br><br>**G*:** Identify, analyze, and synthesize relevant external resources to pose or solve problems. (3, 4) | **3.MD.1:** Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.<br><br>**3.MD.2:** Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem.<br><br>**3.MD.5** Recognize area as an attribute of plane figures and understand concepts of area measurement.<br><br>**3.MD.6** Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units).<br><br>**3.MD.7** Relate area to the operations of multiplication and addition.<br><br>**3.MD.8:** Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters. | MC, MS, EQ, GI, MA, TI |

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